

CLAIMS

We claim:

- 5 1. A composition comprising supramolecular antigenic constructs wherein the supramolecular antigenic constructs comprises an antigenic peptide or active fragment thereof, and wherein the antigenic peptide or active fragment thereof is modified to enhance antigenicity.
- 10 2. The composition of Claim 1, wherein the antigenic peptide or active fragment thereof is modified through pegylation using polyethylene glycol or modified polyethylene glycol.
- 15 3. The composition of Claim 1, antigenic peptide or active fragment thereof is modified by palmitic acid, poly-amino acids, poly-glycine, poly-histidine, poly-saccharides, polygalacturonic acid, polylactic acid, polyglycolide, chitin, chitosan, synthetic polymers, polyamides, polyurethanes, polyesters, co-polymers or poly(methacrylic acid) and N-(2-hydroxy) propyl methacrylamide..
- 20 4. The composition of Claim 1, wherein the supramolecular antigenic constructs comprises:
 a peptide sequence, covalently attached to pegylated lysine- one
25 at each terminus;
 wherein the free PEG terminus is covalently attached to a molecule of phosphatidylethanolamine.
- 30 5. The composition of Claim 1, wherein the antigenic construct is reconstituted in liposomes consisting of phospholipids and cholesterol.
6. The composition of Claim 1, wherein the antigenic peptide comprises an amyloid peptide.

7. The composition of Claim 6, wherein the amyloid peptide comprises SEQ ID NO: 1, SEQ ID NO: 2, SEQ ID NO: 3, SEQ ID NO: 4, SEQ ID NO: 5, or SEQ ID NO: 6.

5 8. The composition of Claim 1, further comprising a pharmaceutical carrier.

9. The composition of Claim 1, wherein the supramolecular antigenic constructs may be used to treat disorders comprising Alzheimer's disease, multidrug resistance in cancer cells, or prion diseases.

10. A method for inducing an immune response comprising the administration of supramolecular antigenic constructs,
15 wherein the supramolecular antigenic constructs comprises an antigenic peptide or active fragment thereof,
and wherein the antigenic peptide or active fragment thereof is modified to enhance antigenicity.

20 11. The method of Claim 10, wherein the antigenic peptide or active fragment thereof is modified through pegylation using polyethylene glycol or modified polyethylene glycol.

12. The method of Claim 10, wherein the antigenic peptide or active
25 fragment thereof is modified by palmitic acid, poly-amino acids, poly-glycine, poly-histidine, poly-saccharides, polygalacturonic acid, polylactic acid, polyglycolide, chitin, chitosan, synthetic polymers, polyamides, polyurethanes, polyesters, co-polymers or poly(methacrylic acid) and N-(2-hydroxy) propyl methacrylamide.

30 13. The method of Claim 10, wherein the supramolecular antigenic constructs comprises:
a peptide sequence, covalently attached to pegylated lysine- one at each terminus;

wherein the free PEG terminus is covalently attached to a molecule of phosphatidylethanolamine.

5 14. The method of Claim 10, wherein the supramolecular antigenic construct is reconstituted in liposomes consisting of phospholipids and cholesterol.

10 15. The method of Claim 10, wherein the antigenic peptide comprises an amyloid peptide.

16. The method of Claim 10, wherein the amyloid peptide comprises SEQ ID NO: 1, SEQ ID NO: 2, SEQ ID NO: 3, SEQ ID NO: 4, SEQ ID NO: 5, or SEQ ID NO: 6.

15 17. The method of Claim 10, further comprising a pharmaceutical carrier.

20 18. The method of Claim 10, wherein the supramolecular antigenic constructs may be used to treat disorders comprising Alzheimer's disease, multidrug resistance in cancer cells, or prion diseases.

25 19. A method for treating Alzheimer's disease comprising administering supramolecular antigenic constructs, wherein the supramolecular antigenic constructs comprises an amyloid peptide or active fragment thereof, and wherein the antigenic peptide or active fragment thereof is modified to enhance antigenicity.

30 20. The method of Claim 19, wherein the antigenic peptide or active fragment thereof is modified by pegylation, palmitic acid, poly-amino acids, poly-glycine, poly-histidine, poly-saccharides, polygalacturonic acid, polylactic acid, polyglycolide, chitin, chitosan, synthetic polymers, polyamides, polyurethanes, polyesters, co-polymers or poly(methacrylic acid) and N-(2-hydroxy) propyl methacrylamide.

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